REMARKS

Applicant would like to thank Examiner Christine Sung for conducting a telephone interview on July 9, 2003 with Applicant's attorney Robert Rapp (Reg. No. 45,393). During this interview, the outstanding office action and cited references were discussed. Agreement was reached that Applicant would make clarifying amendments to independent claims in the application. Such amendments are included herein.

Claims 1-48 are pending in the above-referenced application. Claims 1-7 and 9-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,362,935 to Clark (hereinafter "Clark"). Claims 16-22, 24-37, and 39-45 are rejected under 35 U.S.C. §103(a) as being unpatentable over Clark in view of U.S. Patent No. 5,572,027 to Tawil (hereinafter "Tawil"). The Examiner stated that claims 8, 23, and 38 are allowable if rewritten in independent form.

By this paper, dependent claims 8, 23, and 38 have been cancelled and rewritten in independent form as the newly added claims 46, 47, and 48, respectively. Claims 1, 7, 14, 15, 16, 22, 30, 31, 37 and 45 have been amended to clarify the meaning of terms in these claims. Accordingly, in view of these amendments and the following remarks reconsideration and allowance of claims 1-7, 9-22, 24-37, and 39-48 is respectfully requested.

DRAWING OBJECTIONS

Various objections to the drawings were made. In the attached replacement sheets, the margins and other minor items have been corrected, as appropriate.

ALLOWABLE SUBJECT MATTER

The Examiner indicated that dependent claims 8, 23, and 38 would be allowable if rewritten in independent form. These claims have been rewritten in independent form as newly added claims 46, 47, and 48, respectively. Thus, allowance of claims 46-48 is respectfully requested.

REJECTION OF CLAIMS 1-7 and 9-15 UNDER 35 U.S.C. 103(a) OVER CLARK

Claims 1-7 and 9-15 were rejected under 35 U.S.C. §102(b) over Clark. In the Office Action, it was acknowledged that Clark does not disclose a fuzzy logic component.

Applicant respectfully submits that the Examiner has not made a *prima facie* case of obviousness. It is well settled that the PTO has the burden to establish a *prima facie* case of obviousness. MPEP § 2142. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. MPEP § 2143.03.

The Cited Prior Art Fails to Teach or Suggest a Fuzzy Logic Component

Independent claims 1 and 15 require a fuzzy logic component that uses at least one weighting value. The difference between crisp logic and fuzzy logic is explained in the application as follows:

> Crisp logic methods define criteria that categorize an event as either belonging to a set or not. Fuzzy logic does not involve such discrete categorizations, but involves an assigned weighting value, or possibility value, within a range of values.

Application, p. 9, lines 9-12. An example provided in the specification illustrates the concept of weighting values, which are used in connection with fuzzy logic:

> [I]f a peak within the pulse height data exhibits strong characteristics (i.e., the peak is tall relative to surrounding values and symmetrical) it may be assigned a high value, i.e., a 0.9 in a range of 0 to 1. A peak that does not exhibit such strong characteristics may be assigned a low value, such as 0.1.

Application, p. 24, lines 15-18.

The fuzzy logic component provides unique benefits when used in a hand-held device. As stated in the specification:

> Measurements taken by portable radiation detectors are subject to numerous variables, e.g., the distance between the radioactive material and the detector is unknown, the radioactive material is of an unknown form (gas, liquid, or solid) and an unknown geometry, and intermediary barriers may impede or vary the transmission of the gamma rays. The fuzzy-logic component is better suited to adapt to the variables of in-field analysis than conventional in-field identification methods.

Application, p. 9, lines 16-21.

In addition, fuzzy logic is less computationally intensive than traditional analysis methods, such as the chi-square analysis, thus extending battery life of a device and producing more timely and accurate results using the limited computing power of a hand-held device. application, p. 9, lines 18-20; p. 24, line 21 to p. 25, line 1; and p. 25, lines 1-5.

In contrast to the invention of the present application, Clark teaches traditional analysis techniques that implement crisp logic and discrete categorizations. For example, in Clark, a display 32 "provides an alphanumeric readout of the symbol of the element having its major peak on the channel upon which the cursor is located. If no element has a peak at that channel, then the display element 32 will be blank." Col. 4, lines 48-51. No fuzzy logic is used, taught, or suggested by Clark. Rather the displayed symbol, if any, is indicative of only the channel in which the cursor is located, not channels in close proximity to the channel where the cursor is located.

In addition, in Clark, "secondary indicators identify the energy channels where other peaks exist in the spectrum of the element whose major peak is identified by the location of the cursor." Col. 4, lines 56-59. The system does not provide analysis indicating when peaks are in close proximity to the identified channels. The only indication is whether the peaks are within the identified channels. Clark teaches crisp, rather than fuzzy logic, methods to perform the radioisotope analysis.

Thus, Clark fails to teach or suggest the limitations of amended claims 1 and 15, and claims 2-7 and 9-14, which depend from claim 1. Accordingly, Applicant respectfully requests allowance of claim 1-7 and 9-14.

The Cited Prior Art Fails To Teach or Suggest A Ranked Listing Indicating How Closely Pulse Height Data from a Library of Radioisotopes Matches the Produced Pulse Height Data

Independent claims 1 and 15 require the compilation of a ranked listing of radioisotopes. The ranked listing indicates how closely pulse height data from a library of radioisotopes matches the produced pulse height data. In one embodiment, which is illustrated in Figure 9, radioisotopes whose library values more closely match the gathered pulse height data are shown near the top of the listing.

Clark does not teach or suggest compilation of such a ranked listing. As indicated above, radioisotope identification is performed by moving the cursor to a specific channel. Thereafter, a symbol is displayed to indicate the element having a peak at the specified channel. Col. 4, lines 48-51. Secondary indicators are displayed to indicate energy channels of other peaks of the element whose channel is indicated by the cursor. Col. 4, lines 56-59. No ranked listing is generated that indicates how closely library values match the gathered pulse height data. Accordingly, the cited prior art fails to teach or suggest this limitation.

Thus, amended claims 1 and 15, and claims 2-7 and 9-14, which depend from claim 1, are allowable over Clark. Accordingly, Applicant respectfully requests allowance of claim 1-7 and 9-14.

REJECTION OF CLAIMS 16-22, 24-37, and 39-45 UNDER 35 U.S.C. 103(a) OVER CLARK IN VIEW OF TWIL

Claims 16-22, 24-37, and 39-45 were rejected under 35 U.S.C. §103(a) over Clark in view of Twil. Independent claims 16 and 31 require the use of a fuzzy logic component that uses at least one weighting value, and the compilation of a ranked listing of radioisotopes. As indicated above, these limitations are not taught or suggested in Clark. Twil, which discloses paired active and passive radiation detectors, likewise fails to teach or suggest these limitations.

Accordingly, amended claims 16 and 31 are allowable over the cited prior art. Likewise, claims 17-22, 24-30, 32-37, and 39-45, which depend from either claim 16 or 31 are likewise allowable.

CONCLUSION

Therefore, Applicant respectfully requests allowance of claims 1-48. If the Examiner finds any remaining impediment to the prompt allowance of all claims, Applicant respectfully requests that the Examiner call the undersigned.

Respectfully submitted,

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